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Examiner: Eron J. Sorrell

**In the claims:**

Please amend claims 1-21 as follows:

1. (Currently amended) A system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network, comprising:

an input event decoder for decoding an input event including at least a service access point (SAP) and a connection identifier (CID) associated with a service provider layer operating pursuant to a protocol layer service for a particular connection link;

a state decoder for decoding state-specific context information retrieved by a context switch control block from a context memory based on said SAP and CID; and

a generic state machine (GSM) logic structure operable to be personalizable based on said state-specific context information, said GSM logic structure having a state logic package partitionable into a control plane and a data plane, said control plane operating to process said decoded input event based on said decoded state-specific context information and said data plane operating to process data operations relating to said protocol layer service, wherein said control and data planes are operable to exchange layer parameters for said service provider layer, said control plane and said data plane operating separately in parallel to increase protocol performance in the application node, said control plane providing its output as an input to a control plane of an adjacent protocol layer associated with said protocol layer service, and said data plane providing its output as an input to a data plane of an adjacent protocol layer associated with said protocol layer service.

2. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 1, further comprising a tester block for performing tests on input parametric information extracted from said decoded input event and said decoded state-specific context information.

3. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 2, further comprising an operations module for performing cyclical redundancy check (CRC) operations and protocol overhead operations on input parametric information extracted from said decoded input event and said decoded state-specific context information.

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4. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 3, wherein said control plane is operable to receive test output from said tester block.

5. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 4, wherein said control plane is operable to provide control input to said operations module.

6. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 5, further including:

an output event encoder for generating a coded output event based on output provided by said control plane and said operations module; and

a state encoder for generating a coded next-state information based on next-state output provided by said control plane and on parametric output provided by said operations module.

7. (Currently amended) ~~The~~ A system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network, comprising: as set forth in claim 6,

an input event decoder for decoding an input event including at least a service access point (SAP) and a connection identifier (CID) associated with a service provider layer operating pursuant to a protocol layer service for a particular connection link;

a state decoder for decoding state-specific context information retrieved by a context switch control block from a context memory based on said SAP and CID;

a generic state machine (GSM) logic structure operable to be personalizable based on said state-specific context information, said GSM logic structure having a state logic package partitionable into a control plane and a data plane, said control plane operating to process said decoded input event based on said decoded state-specific context information and said data plane operating to process data operations relating to said protocol layer service, wherein said control and data planes are operable to exchange layer parameters for said service provider layer;

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a tester block for performing tests on input parametric information extracted from said decoded input event and said decoded state-specific context information;

an operations module for performing cyclical redundancy check (CRC) operations and protocol overhead operations on input parametric information extracted from said decoded input event and said decoded state-specific context information;

wherein said control plane is operable to receive test output from said tester block and said control plane is operable to provide control input to said operations module;

an output event encoder for generating a coded output event based on output provided by said control plane and said operations module; and

a state encoder for generating a coded next-state information based on next-state output provided by said control plane and on parametric output provided by said operations module.

wherein a first plurality of delay registers are disposed between said tester block and said control plane's protocol state machine, and a second plurality of delay registers are disposed between said operations module and said control plane's protocol state machine, said first and second plurality of delay registers operating to control routing delays between said control and data planes.

8. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 6, wherein said GSM logic structure is personalizable as a Service Specific Coordination Function (SSCF) control state machine based on said state-specific context information retrieved from said context memory.

9. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 6, wherein said GSM logic structure is personalizable as an Asynchronous Transfer Mode (ATM) Adaptation Layer (AAL) control state machine based on said state-specific context information retrieved from said context memory.

10. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim

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6, wherein said GSM logic structure is personalizable as a Service Specific Connection Oriented Protocol (SSCOP) control state machine based on said state-specific context information in said context memory.

11. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 6, wherein said GSM logic structure is personalizable as a state machine operating to transfer SSCOP layer data based on said state-specific context information in said context memory.

12. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 6, wherein said GSM logic structure is personalizable as a state machine operating to transfer SSCF layer data based on said state-specific context information in said context memory.

13. (Previously presented) The system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network as set forth in claim 6, wherein said GSM logic structure is personalizable as a state machine operating to transfer AAL layer data based on said state-specific context information in said context memory.

14 - 22 (Canceled)

23. (New) A system for optimizing state machine transitional performance in a protocol stack at an application node disposed in a network, comprising:

- an input event decoder for decoding an input event including at least a service access point (SAP) and a connection identifier (CID) associated with a service provider layer operating pursuant to a protocol layer service for a particular connection link;

- a state decoder for decoding state-specific context information retrieved by a context switch control block from a context memory based on said SAP and CID;

- a generic state machine (GSM) logic structure operable to be personalizable based on said state-specific context information, said GSM logic structure having a state logic package partitionable into a control plane and a data plane, said control plane operating to process said

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decoded input event based on said decoded state-specific context information and said data plane operating to process data operations relating to said protocol layer service, wherein said control and data planes are operable to exchange layer parameters for said service provider layer,

wherein said data plane includes

a tester block operating in parallel with the control plane to perform tests on input parametric information extracted from said decoded input event and said decoded state-specific context information and provide to the control plane, test output, which is delayed to control routing delays between said control and data planes,

an operations module for performing, in parallel with the control plane, protocol overhead operations on input parametric information extracted from said decoded input event and said decoded state-specific context information,

wherein said control plane is operable to provide to said operations module of the data plane, control input, which is delayed to control routing delays between said control and data planes;

an output event encoder for generating a coded output event based on output provided by said control plane and said operations module; and

a state encoder for generating a coded next-state information based on next-state output provided by said control plane and on parametric output provided by said operations module,

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